Water Planning and Management

Understanding & using our resources

- Looking at our climate seasonally.
- Analyzing trends
- Preparing for the future.
- Adapting to changes in the climate.
- Anticipating the future.

Inside this issue:

4 Kansas Tribes Climate Summary

Volume 1, Issue 1 Spring 2018

Climate is a Tribal Concern

Climate change is not just a coastal issue. In northeast Kansas and southeast Nebraska it is easy to notice when farmers begin planting and harvesting earlier than usual. The big freeze comes later and each month appears to be a bit milder than it was last year.

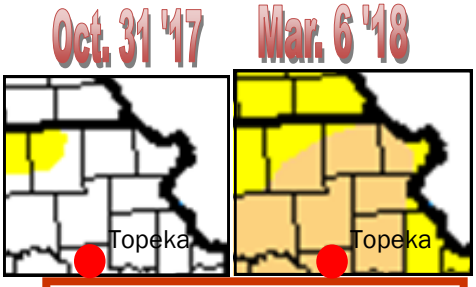
There is data that supports these observations and these numbers come from many sources. On a national level there are NOAA and the National Weather Service. Regionally, state climatologists and universities have looked into the numbers and can tell us why we are warming and how it is happening. Locally, we have weather stations and our own knowledge that recognizes the changes. The Iowa, Kickapoo, Prairie Band Potawatomie and Sac and Fox Tribes have been partnering with many different groups to understand the nature and scope of the problem so that tribal members can better anticipate some of the problems and be able to adapt to changes and to also look for ways that we can lessen our own impact on climate change.

Ma'Ko'Quah Abigail Jones and the PBPN hosted four climate workshops in 2017

Climate Highlights

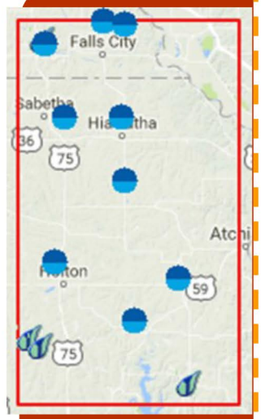
From mid-October to December the Sac and Fox Reservation experienced 65 consecutive days without measurable precipitation.. This broke a record that had stood since December of 2003.

December and January are typically dry months in the region and overall we were about five inches short of the normal amount of moisture for the year.



From October to March our region has moved from normal (White) to abnormally dry (yellow) and moderate drought (tan)

https://www.drought.gov/



There are 11 weather stations we can access aside from our own tribal air programs to help us see the differences that exist even in a small region like ours.

Name
FAIRVIEW
HIAWATHA 1 S
HOLTON
HORTON
MAYETTA 5.5 WSW
MAYETTA 6.8 W
NORTONVILLE
OSKALOOSA 0.5 S
VALLEY FALLS
DAWSON 2.5 SE
FALLS CITY 4NE
FALLS CITY BRENNER FIELD
SALEM 5SW

Big Nemaha

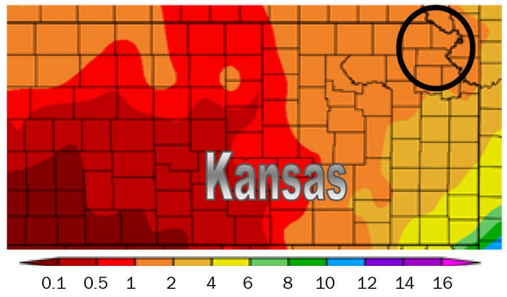
Delaware

Big Soldier

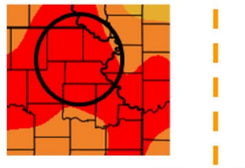
Rainfall

Our lands in NE Kansas and SE Nebraska received between one and two inches of precipitation in the last 90 days. Horton had its 12th driest winter on record! (1891-2018) A wet October resulted in most of the region moving out of drought status but dryness since November has caused drought to return to the region.

Precipitation (in) 12/6/17—3/5/18



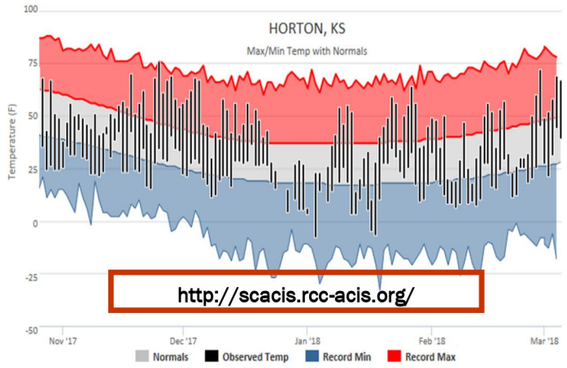
% Normal Precip.
12/1/17 - 2/28/18



http://scacis.rcc-acis.org/

Temperature

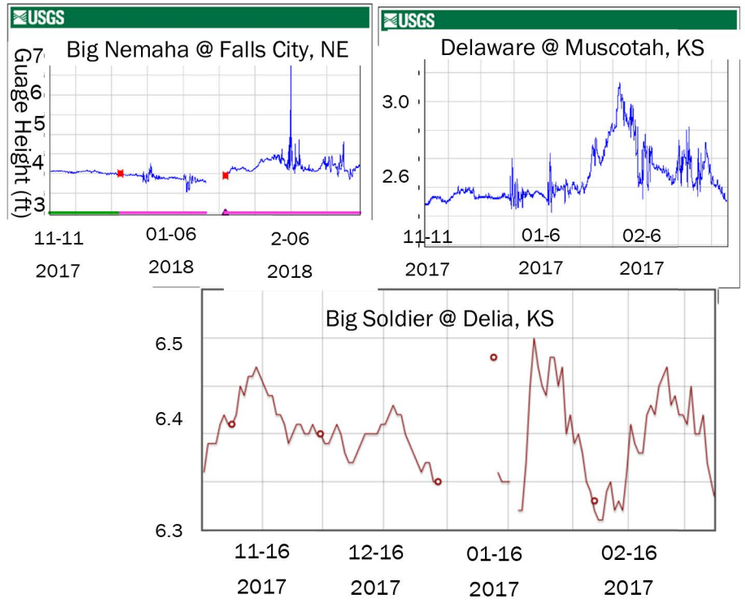
Horton, KS is a central weather station for the four Tribes and the historical record goes back over a hundred years. This temperature graph for the period of November through February 2018 suggests near normal temperatures.



http://scacis.rcc-acis.org/

Streams

Gauge heights of three streams typically correspond to rain events. Icing has interrupted some of the measurements but the creeks on tribal lands are running at levels well below normal for this time of year.



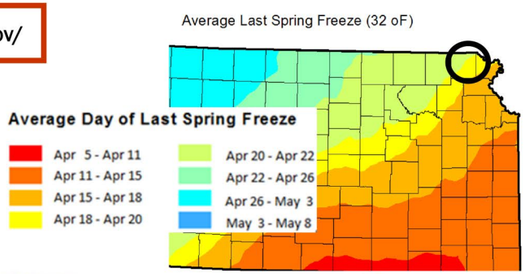
https://waterdata.usgs.gov/ks/nwis/

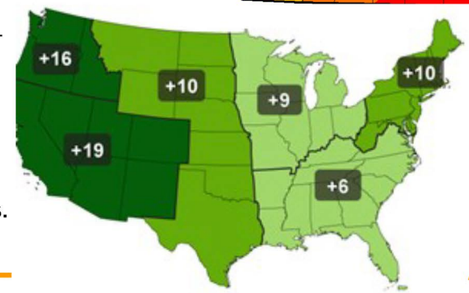
Crops and Herds

https://nca2014.globalchange.gov/

Climate Change directly impacts agriculture at all levels as the length of the growing season.in the last 25 years has expanded by over 10 days in the Central Plains. This allows for earlier planting and later harvesting. It can also mean speeding up other activities such as prescribed burns and fertilizer application. a longer growing season can lead to increased susceptibility to freezes.

The changes also mean that species that historically have only been found farther south will now inhabit new lands. Keep an eye out for armadillos.

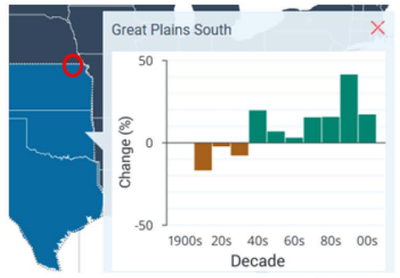




Flooding

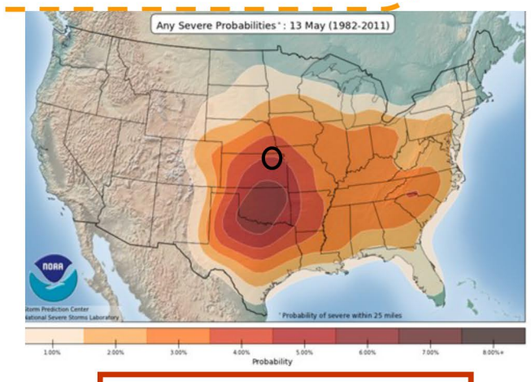
Flooding is one of the key concerns in our region and can be caused by a couple of different things. Precipitation is of course the leading factor but we also need to be aware of releases upstream from reservoirs along the Missouri River. Flooding and flash flooding incidents are expected to increase as we see extreme rain events in our area happen more often.

Precipitation falling in very heavy events, defined as the heaviest 1% of all daily events from 1901 to 2012 is the primary cause of this. In recent decades the largest increases are in the Northeast and Great Plains. Another downside to this is longer stretches between rainy days.



Severe Storms

Spring is tornado season and a recent study by Dr. James Elsner of the University of Florida suggests the actual number of tornadoes spawned during individual tornado outbreaks is increasing, while the number of tornadoes is relatively unchanged each year. Consequently, there will be fewer “tornado days” but during those days we can expect a larger number of tornadoes to pop up. The phenomenon has not been tied to climate change but is interesting nonetheless.



http://www.spc.noaa.gov/new/

Water Planning and Management

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The Four Kansas Tribes are working with Haskell University under a BIA Water Planning Grant to create a set of tools that will allow our communities to better understand the resources we have and build resilience into the decision making process. Quarterly Climate Summaries use data from the High Plains Regional Climate Center, The Drought Mitigation Center, The Kansas Water Office, The 2014 National Climate Assessment, USGS Stream Flow, NOAA's Storm Prediction Center along with anecdotal evidence to create a snap shot of our environment and how we can best plan for the future.

Be a Part of the Story

Much of the data we use for the Quarterly Climate Summary comes from Citizen Scientists. They are part of a network called the Community Collaborative Rain, Hail and Snow (CoCoRaHS) Network.

So far we have only one CoCoRaHS station on Tribal lands in Kansas but that can change if you would like to become part of the network.

Volunteer applications are now being accepted from across the region. If you have a sincere dedication to taking and reporting precipitation observations, CoCoRaHS is for you!

The project holds great benefits to scientific research, the fields of agriculture and public safety, and make it easier than ever before to quickly and accurately monitor our precious water resources.

CoCoRaHS stations are not difficult to set up or to monitor.

If you are interested contact:

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